

WHAT IS CLAIMED IS:

1. A method of modulating gene transcription *in vivo* within mammalian cells, said method comprising:

contacting a mammal with a composition comprising dsDNA having a sequence
5 specific for binding to a transcription factor which modulates the transcription of at least one gene,

whereby said dsDNA is introduced into the nuclei of said cells in an amount sufficient to competitively inhibit the binding of said transcription factor to said gene, whereby the transcription of said gene is modulated.

10

2. A method according to Claim 1, wherein said dsDNA is capable of episomal replication in said cell.

3. A method according to Claim 1, wherein said dsDNA consists essentially of
15 oligonucleotides less than 100 bp in length.

4. A method according to Claim 1, wherein said composition further comprises liposomes and said dsDNA is contained within the lumen of said liposomes.

20 5. A method according to Claim 4, wherein said liposomes comprise lipid and a viral coat protein.

6. A method according to Claim 1, wherein said transcription factor is E2F, AP-1 or NF κ B.

25

7. A method according to Claim 1, wherein said cells are vascular smooth muscle cells, tumor cells or endothelial cells..

8. A method for treating a mammalian host to prevent restenosis, said method
30 comprising:

introducing dsDNA into vascular smooth muscle cells at the site of a vascular lesion, said cells capable of resulting in restenosis as a result of neointima formation,

in an amount to inhibit said neointima formation,

whereby said dsDNA is characterized by having a sequence specific for binding to a transcription factor which modulates the transcription of at least one gene, where the transcription product of said gene is necessary for proliferation of said cells.

5

9. A composition comprising a viral coat protein-liposome containing dsDNA in the lumen of said liposome in a physiologically acceptable medium, wherein said dsDNA is characterized by having a sequence specific for binding to a transcription factor, wherein said transcription product of said gene is necessary for cell proliferation.

10

10. A composition according to Claim 12, wherein said viral coat is from the hemagglutinating virus Japan.

- 15 11. A composition according to Claim 12, wherein said transcription factor is E2F, AP-1 or NF κ B.

12. A composition according to Claim 12, wherein said dsDNA is at a concentration in the range of about 0.1 to 20 μ M.

20

add a 17

